



# Volunteer Lake Assessment Program Individual Lake Reports

## ISLAND POND, STODDARD, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	21,874	Max. Depth (m):	5.5	Flushing Rate (yr <sup>-1</sup> )	32.3
Surface Area (Ac.):	158	Mean Depth (m):	2.3	P Retention Coef:	0.28
Shore Length (m):	6,300	Volume (m <sup>3</sup> ):	1,668,500	Elevation (ft):	1281

### TROPHIC CLASSIFICATION

Year	Trophic class
1993	MESOTROPHIC
2004	MESOTROPHIC

### KNOWN EXOTIC SPECIES


The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at [www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm](http://www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm)

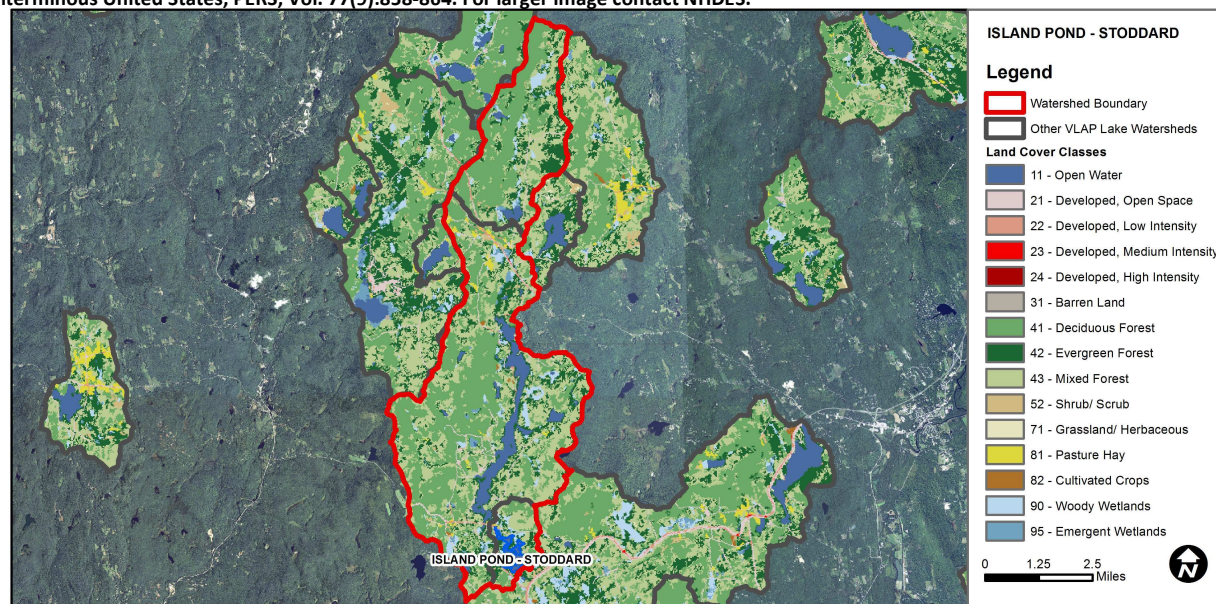
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	The calculated median is from 5 or more samples and is > indicator and the chlorophyll a indicator is exceeded.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen saturation	Slightly Bad	There are >10% of samples (minimum of 2), exceeding criteria.
	Chlorophyll-a	Slightly Bad	The calculated median is from 5 or more samples and is > indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

### BEACH PRIMARY CONTACT ASSESSMENT STATUS

ISLAND POND - PUBLIC BEACH	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
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### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.84	Barren Land	0	Grassland/Herbaceous	0.05
Developed-Open Space	2.62	Deciduous Forest	38.21	Pasture Hay	0.91
Developed-Low Intensity	0.67	Evergreen Forest	15.24	Cultivated Crops	0.09
Developed-Medium Intensity	0.01	Mixed Forest	31.12	Woody Wetlands	3.58
Developed-High Intensity	0	Shrub-Scrub	0.57	Emergent Wetlands	0.91



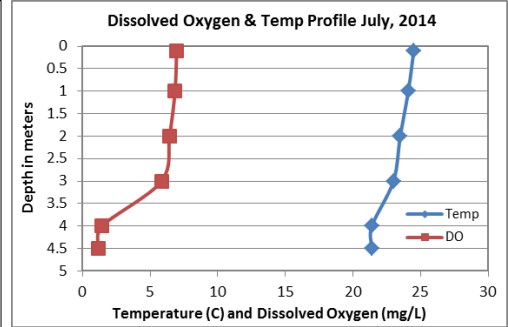
# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## ISLAND POND, STODDARD

### 2014 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- **CHLOROPHYLL-A:** Chlorophyll levels were elevated in June, increased in July, and then decreased to average levels in August. Chlorophyll levels in July were approaching those indicative of an algal bloom. Average chlorophyll levels increased from 2013 and were greater than the state median. Historical trend analysis indicates stable chlorophyll levels since monitoring began, however chlorophyll levels have risen steadily since 2010.
- **CONDUCTIVITY/CHLORIDE:** Deep spot, Inlet and Outlet conductivity levels were low and less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic (upper water layer) conductivity levels since monitoring began. We hope to see this continue! Other area lakes have also experienced a similar decrease in conductivity levels.
- **E. COLI:** E. coli levels at all stations were very low and much less than the state standards for public beaches and surface waters.
- **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels remained stable from June to July and increased in August when water levels were low. Average epilimnetic phosphorus levels decreased slightly from 2013 and were slightly less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus since monitoring began. We hope to see this continue! Hypolimnetic (lower water layer) phosphorus levels decreased from June to July and then increased in August. Inlet phosphorus levels decreased from June to August and were in a low range. Outlet phosphorus levels remained low from June to August.
- **TRANSPARENCY:** Transparency measured without the viewscope (NVS) was average for the pond in June, but decreased in July due to the elevated algal growth. Average transparency was the lowest measured since monitoring began, however transparency measured with the viewscope (VS) was generally better than without. Historical trend analysis indicates stable transparency since monitoring began.
- **TURBIDITY:** Epilimnetic turbidity was elevated in June and July due to algal growth, and again in August. A layer of algae may have been at the surface of the water in August and contributed to the elevated turbidity, or a significant storm event had occurred prior to sampling, and stormwater runoff may have contributed to elevated turbidity. Hypolimnetic turbidity was also slightly elevated in June and July potentially due to algal growth. Inlet turbidity was slightly elevated on each sampling event. Outlet turbidity was elevated in July and August.
- **pH:** Deep spot and tributary pH levels were less than desirable range 6.5-8.0 units. When pH levels decrease below 6.5 units, it can impact fish and other aquatic organisms. Historical trend analysis indicates highly variable epilimnetic pH since monitoring began.
- **RECOMMENDED ACTIONS:** The improving epilimnetic conductivity and phosphorus levels are encouraging; however algal growth was elevated and was the highest measured since 2004. The increased frequency and intensity of storm events and resulting stormwater runoff may be transporting excess nutrients and sediments to the pond. Identifying areas of stormwater runoff and installing stormwater best practices to capture and infiltrate stormwater is recommended. Utilize DES' "NH Homeowner's Guide to Stormwater Management" as a reference. Keep up the great work!



**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** > 230 mg/L (chronic)

**E. coli:** > 88 cts/100 mL – public beach

**E. coli:** > 406 cts/100 mL – surface waters

**Turbidity:** > 10 NTU above natural level

**pH:** between 6.5-8.0 (unless naturally occurring)

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L

**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>

**Conductivity:** 40.0 uS/cm

**Chloride:** 4 mg/L

**Total Phosphorus:** 12 ug/L

**Transparency:** 3.2 m

**pH:** 6.6

Station Name	Table 1. 2014 Average Water Quality Data for ISLAND POND							
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu
						NVS	VS	
Epilimnion	2.27	7.71	27.5	10	11	2.48	2.81	4.45
Hypolimnion			28.0	10	11			1.87
Inlet			27.6	10	10			1.40
Outlet			27.3	10	8			1.03

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Improving	Data significantly decreasing.	Chlorophyll-a	Stable	Trend not significant; data show low variability.
pH (epilimnion)	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.

